



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/682,316	10/09/2003	Shan Liu	SAM2.0030	9831
23386 7590 03/28/2008 MYERS DAWES ANDRAS & SHERMAN, LLP 19900 MACARTHUR BLVD. SUITE 1150 IRVINE, CA 92612			EXAMINER WONG, ALLEN C	
			ART UNIT 2621	PAPER NUMBER
			MAIL DATE 03/28/2008	DELIVERY MODE PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/682,316	Applicant(s) LIU ET AL.	
	Examiner Allen Wong	Art Unit 2621	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 27 December 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-28 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 2-5, 7-10, 12, 14, 16-24 and 26-28 is/are allowed.
- 6) ☒ Claim(s) 1, 6, 11, 13, 15 and 25 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 09 October 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) ☒ Notice of References Cited (PTO-892) | 4) ☐ Interview Summary (PTO-413) |
| 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) ☐ Information Disclosure Statement(s) (PTO/SB/08) | 5) ☐ Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) ☐ Other: _____ |

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 12/27/07 has been entered.

Response to Arguments

2. Applicant's arguments with respect to claims 1, 6, 11, 13, 15 and 25 have been considered but are moot in view of the new ground(s) of rejection.

.

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1, 6, 11, 13, 15 and 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lee (5,617,149) and Webb (6,847,408) in view of Pan (US 2003/0076448).

Regarding claim 1, Lee discloses a method of detecting an opaque image in an area of each of a sequence of frames comprising pixels that represent digital video images (col.3, ln.42-51), comprising the steps of:

detecting a scene change between at least two of said frames, designated as a current frame and a reference frame (col.3, ln.42-51; Lee discloses the determination of scene change between frames f_n versus f_{n-1} ; see fig.5-6);

upon detecting a scene change, calculating a stochastic measure σ_d of a plurality of pixels in the image frame based on the standard deviation of differences in pixel values in said two frames in the temporal domain (col.4, ln.20-43; Lee discloses the calculation of the MAD (mean absolute value) and the dMAD (difference mean absolute value) values, wherein both the stochastic MAD and dMAD obtain the aggregate pixel value data from the successive image frames).

Lee does not specifically disclose detecting an opaque image in said area by comparing the stochastic measure σ_d with a given noise level (STD). However, Webb teaches the reduction of noise levels with comparison to a threshold value (col.1, ln.59-64 and col.2, ln.12-30, Webb discloses that element 104 determines the reduced noise version, ie. opaque image, between elements 108 and 109 with the given noise level from element 112 or 113). Therefore, it would have been obvious to one of ordinary skill in the art to combine the teachings of Lee and Webb as a whole for reducing noise on images displayed at the output (Webb col.1, ln.59-60).

Lee and Webb do not specifically disclose that the opaque image comprising identification information. However, Pan teaches that the opaque image comprising

identification information (paragraphs 0036 and 0039-0040, Pan discloses the use of logos, ie.opaque images, and “logo transitions” for identifying information purposes during scene changes or scene transitions, and that logos are used to identify information pertaining to scene changes or transitions). Therefore, it would have been obvious to one of ordinary skill in the art to combine the teachings of Lee, Webb and Pan, as a whole, for efficiently and robustly model transitions replay data for display on screen so as to permit clear identification of scene changes (Pan’s paragraph 0037).

Regarding claim 6, Lee does not specifically disclose wherein the steps of detecting a scene change further includes the steps of: generating a count C of the number pixels in the current frame whose difference in intensity relative to corresponding pixels in the reference frame, after subtracting the given noise mean, exceeds the threshold value. However, Webb teaches the generation of a count of pixel values (fig.1, element 104 and col.2, ln.13-26). Therefore, it would have been obvious to one of ordinary skill in the art to combine the teachings of Lee and Webb as a whole for reducing noise on images displayed at the output (Webb col.1, ln.59-60).

Regarding claim 11, Lee does not specifically disclose wherein the step of detecting an opaque image further includes the steps of: classifying each pixel in said area of the current frame as an opaque image pixel, if the σ_d for that pixel matches the given noise level, represented by the standard deviation σ_s . However, Webb teaches the reduction of noise levels with comparison to a threshold value (col.1, ln.59-64 and col.2, ln.12-30, Webb discloses that element 104 determines the reduced noise version, ie. opaque image, between elements 108 and 109 with the given noise level

from element 112 or 113). Therefore, it would have been obvious to one of ordinary skill in the art to combine the teachings of Lee and Webb as a whole for reducing noise on images displayed at the output (Webb col.1, ln.59-60).

Lee and Webb do not specifically disclose wherein the opaque image comprises a logo. However, Pan teaches wherein the opaque image comprises a logo (paragraphs 0036 and 0039-0040, Pan discloses the use of logos, ie.opaque images, and “logo transitions” for identifying information purposes during scene changes or scene transitions, and that logos are used to identify information pertaining to scene changes or transitions). Therefore, it would have been obvious to one of ordinary skill in the art to combine the teachings of Lee, Webb and Pan, as a whole, for efficiently and robustly model transitions replay data for display on screen so as to permit clear identification of scene changes (Pan’s paragraph 0037).

Regarding claim 13, Lee does not specifically disclose further comprising the steps of: detecting and reclassifying any mis-classified pixels in a refinement process. Webb teaches the detection and reclassification of pixels (fig.1, element 104 and col.2, ln.13-26). Therefore, it would have been obvious to one of ordinary skill in the art to combine the teachings of Lee and Webb as a whole for reducing noise on images displayed at the output (Webb col.1, ln.59-60).

Regarding claim 15, Lee discloses an opaque image detection system for detecting an opaque image in an area of each of a sequence of frames including pixels that represent digital video images (col.3, ln.42-51), comprising:

a scene change detector that detects scene change between at least two of said frames, designated as a current frame and a reference frame (col.3, ln.42-51; Lee discloses the determination of scene change between frames f_n versus f_{n-1} ; see fig.5-6);

a stochastic characteristic generator that upon detection of scene change by the scene change detector, calculates a stochastic measure σ_d of said area based on the standard deviation of differences in pixel values in said two frames in the temporal domain (col.4, ln.20-43; Lee discloses the calculation of the MAD (mean absolute value) and the dMAD (difference mean absolute value) values, wherein both the stochastic MAD and dMAD obtain the aggregate pixel value data from the successive image frames).

Lee does not specifically disclose an opaque image detector that detects an opaque image in said area by comparing the stochastic measure σ_d with a given noise level, represented by the standard deviation σ_s . However, Webb teaches the reduction of noise levels with comparison to a threshold value (col.1, ln.59-64 and col.2, ln.12-30, Webb discloses that element 104 determines the reduced noise version, ie. opaque image, between elements 108 and 109 with the given noise level from element 112 or 113). Therefore, it would have been obvious to one of ordinary skill in the art to combine the teachings of Lee and Webb as a whole for reducing noise on images displayed at the output (Webb col.1, ln.59-60).

Lee and Webb do not specifically disclose that the opaque image comprising identification information. However, Pan teaches that the opaque image comprising

identification information (paragraphs 0036 and 0039-0040, Pan discloses the use of logos, ie.opaque images, and “logo transitions” for identifying information purposes during scene changes or scene transitions, and that logos are used to identify information pertaining to scene changes or transitions). Therefore, it would have been obvious to one of ordinary skill in the art to combine the teachings of Lee, Webb and Pan, as a whole, for efficiently and robustly model transitions replay data for display on screen so as to permit clear identification of scene changes (Pan’s paragraph 0037).

Regarding claim 25, Lee does not specifically disclose wherein the opaque image detector further classifies each pixel in said area of the current frame as an opaque image pixel, if the σ_d for that pixel matches a given noise level, represented by the standard deviation σ_s . However, Webb teaches the reduction of noise levels with comparison to a threshold value (col.1, ln.59-64 and col.2, ln.12-30, Webb discloses that element 104 determines the reduced noise version, ie. opaque image, between elements 108 and 109 with the given noise level from element 112 or 113). Therefore, it would have been obvious to one of ordinary skill in the art to combine the teachings of Lee and Webb as a whole for reducing noise on images displayed at the output (Webb col.1, ln.59-60).

Lee and Webb do not specifically disclose wherein the opaque image comprises a logo. However, Pan teaches wherein the opaque image comprises a logo (paragraphs 0036 and 0039-0040, Pan discloses the use of logos, ie.opaque images, and “logo transitions” for identifying information purposes during scene changes or scene transitions, and that logos are used to identify information pertaining to scene

changes or transitions). Therefore, it would have been obvious to one of ordinary skill in the art to combine the teachings of Lee, Webb and Pan, as a whole, for efficiently and robustly model transitions replay data for display on screen so as to permit clear identification of scene changes (Pan's paragraph 0037).

Allowable Subject Matter

Claims 2-5, 7-10, 12, 14, 16-24 and 26-28 are allowed.

The following is a statement of reasons for the indication of allowable subject matter: Claims 2-5, 7-10, 12, 14, 16-24 and 26-28 were objected to as being dependent upon a rejected base claim, but now claims 2-5, 7-10, 12, 14, 16-24 and 26-28 are allowable since they are rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Allen Wong whose telephone number is (571) 272-7341. The examiner can normally be reached on Mondays to Thursdays from 8am-6pm Flextime.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John W. Miller can be reached on (571) 272-7353. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR.

Art Unit: 2621

Status information for unpublished applications is available through Private PAIR only.

For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Allen Wong/
Primary Examiner, Art Unit 2621

Allen Wong
Primary Examiner
Art Unit 2621

AW
3/28/08